

s y m p h o n y | LN

Successful recording depends on careful design, improved switching operations and an appreciation of current studio trends and requirements.

Successful liaison between ourselves and studio personnel coupled with the latest technology has produced one of the finest sounding consoles available today. Modern digital recording practice demands more exacting console performance whilst satisfying the need for warmth and clarity. These ideals; together with personal attention form the basis upon which our range of consoles are designed.

Successful implementation is ours. Studios and engineers acclaim our achievement of excellent sound quality, extremely low noise and leakage without sacrifice to versatility.

Features and capabilities.

Ultra low levels of mixing and inherent noise.

Absolute minimum of leakage and cross talk throughout the console.

Extremely wide bandwidth and stable operation.

Exceptional clarity, minimum of phasing and absence of colouration.

Flexibility of the console design via master or local status controls, listen and safety features.

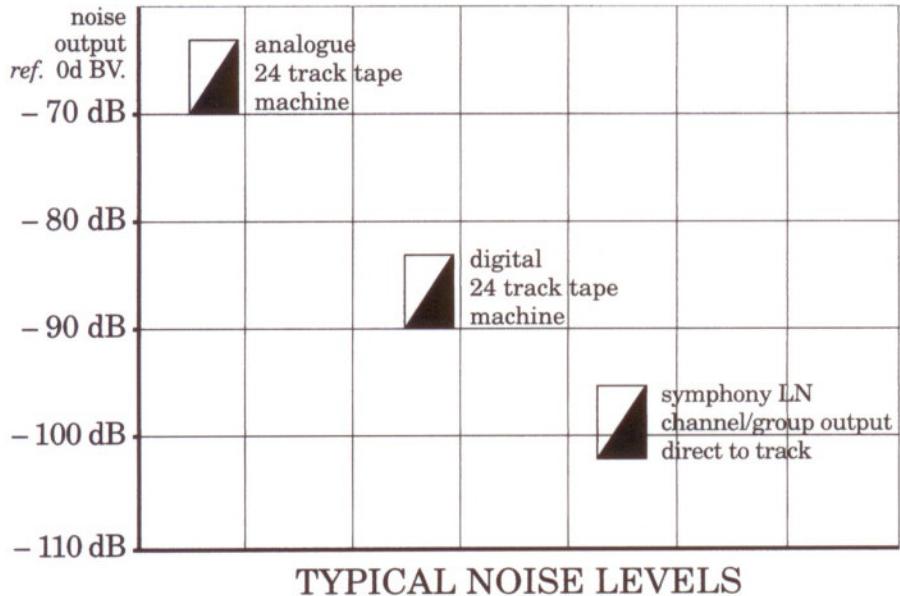
Sympathetic 5 band parametric and shelving equalization giving precise manipulation and subtle control of the whole audio range.

Fully fitted ADC 19" Bantum patch bay, 624 jacks minimum on a 40 channel console.

All final console inputs and outputs are electronically balanced.

Separate fader modules allow fitting of VCA or moving fader modules.

s y m p h o n y LN



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A range of exceptional sound quality In Line recording consoles for music, post production and mobile recording facilities which may include mono, LCRS, stereo and subgroup channels.

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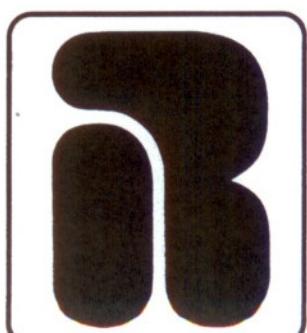
24 to 96 channel, 32 group recording consoles for tracking and mixing. May include moving faders or VCA grouping and bargraph metering.

t v post

A multi-tasking console providing stereo and LCRS facilities for recording and mixing with particular application to television post production.

m o b i l e

24 to 72 channel, 48 group consoles with dual microphone channel modules. 2.5M (8') standard vehicles will accommodate a 48 channel console. A maximum of 96 microphone inputs and 96 monitor returns can be used simultaneously on a 48 channel console if the main channel path is split at the insertion point. Dual power supplies provide automatic backup without interruption to console performance.

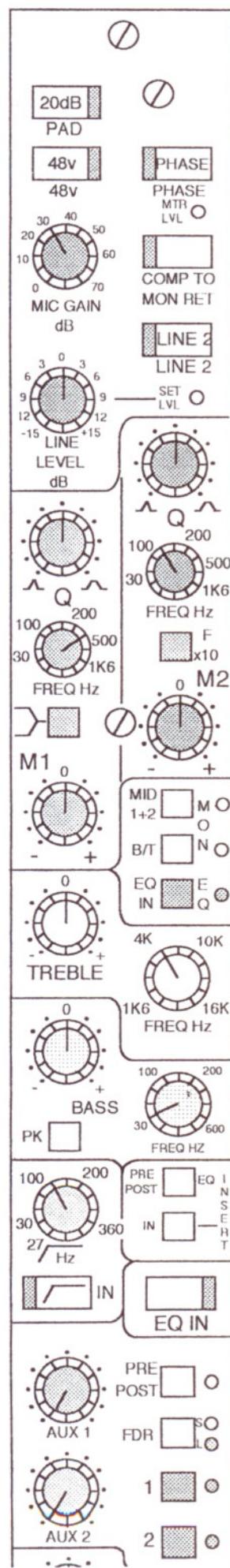


RAINDIRK

RAINDIRK AUDIO

BRIDGE STREET DOWNHAM MARKET NORFOLK PE33 9DW
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STANDARD LN 3 IN LINE CHANNEL MODULE



CHANNEL INPUTS.

3 signal input ports are provided, all balanced, a microphone input and two line inputs for mixing.

The first and main line input has a gain range of +/- 15dB and an input impedance of 10kΩ. This line input may be replaced by switching in the second line input, this is connected pre the line level gain control and has the same gain range at the front panel. An additional feature is the provision of a 0 - 14dB 15 turn pre-set variable gain control adjusted via a small hole in the panel allowing via the L2 switch the instant switching into circuit of any low output signal source.

A gain range of 0 - 70dB is given to the microphone input amplifier which has a nominal balanced input impedance of 3.5kΩ. When the attenuator PAD is in circuit this impedance is increased to 30kΩ to accept synthesizers etc. to be connected directly into the microphone input. (The 48v phantom power would normally be switched off during this particular use of the microphone input).

PHASE REVERSAL operates post the microphone/line input amplifiers.

5 BAND EQUALIZER

All controls are continuously variable, +/- 15dB of gain is provided along with a range of 0.5 to 5 Q control. Frequency ranges are chosen to provide powerful and smooth control of the audio field. The audio bandwidth of the console is excellent thus allowing the full facilities of the equalizer to be heard. The equalizer is available to the monitor path signal as described below.

MID 1

A wide ranging bass parametric section which may be switched to shelving response.

MID 2

A second parametric section with a more detailed frequency sweep control operating in conjunction with a x10 frequency scaling switch enabling precise control over the sensitive area of mid and high frequency material.

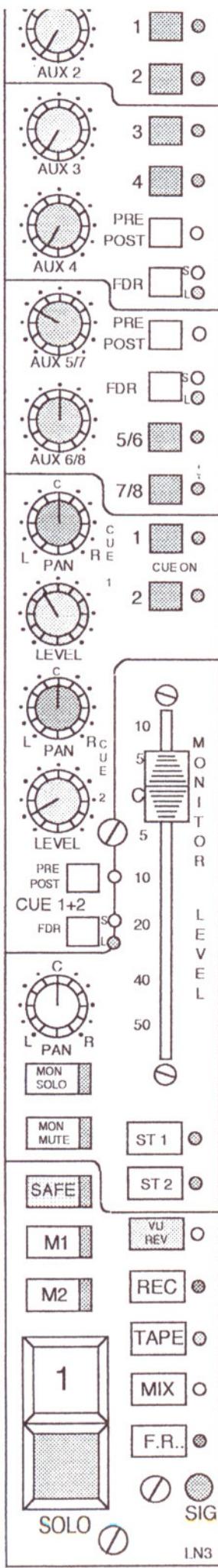
EQ TO MONITOR PATH SWITCHING

The parametric or bass and treble sections may be switched independently into the monitor path.

Selection of EQ TO MONITOR will not affect the monitor path signal until the MONITOR EQ IN/OUT switch is used. A/B of EQ comparison of the monitor path EQ using the EQ in/out switch does not affect the channel path signal.

TREBLE

This section has a shelving response. Because the Symphony console has an excellent high frequency response the performance of this section is not curtailed, a bell type response at these frequencies is not produced and the clarity of this important area of the frequency band remains unaffected by high frequency loss.



BASS

The swept bass equalizer may be set to bell or shelving response. Wide band control may be obtained when used in conjunction with the high pass filter. The overall response of the console extends to 6Hz, therefore purity and phasing of the bass sound is unaffected.

HIGH PASS FILTER

A - 12dB/octave filter is permanently in the channel path and unaffected by the EQ in/out switch.

A single INSERTION POINT may be selected pre or post the equalizer. The insertion point may be switched in or out of circuit to judge the performance of a device.

8 MONO AUXILIARY SENDS 2 STEREO CUE SENDS

The auxiliary and cue sends may be switched pre/post either the short or long fader.

Small yellow and green led's indicate which fader source is being used. One switch routes auxiliaries 5/6 simultaneously and another auxiliary 7/8. Auxiliary 5/6 level control also sets the send level for auxiliary 7/8, in this manner the number of mono sends is increased to 8.

A short fader is provided which is used for monitoring, the microphone fader or for sub grouping. At any time the program material on the two faders may be reversed without affecting any other facility. The mute and solo switches remain with their respective monitor and input sections of the channel.

5 LOCAL STATUS control switches allow individual channels to be separated from the master status control of the console. The SAFE switch removes the channel from the solo in place system, a green led adjacent to the switch indicates the safe condition whether this be selected locally or globally when the whole console would be in AFL/PFL safe mode. If a channel is in either local or global safe, pressing the channel solo switch will produce an AFL or PFL output at the monitors and cause the Solo lamp to flash.

A white illuminated 'CHANNEL ON' switch mutes the channel at the fader and includes all aux/cue post fader outputs.

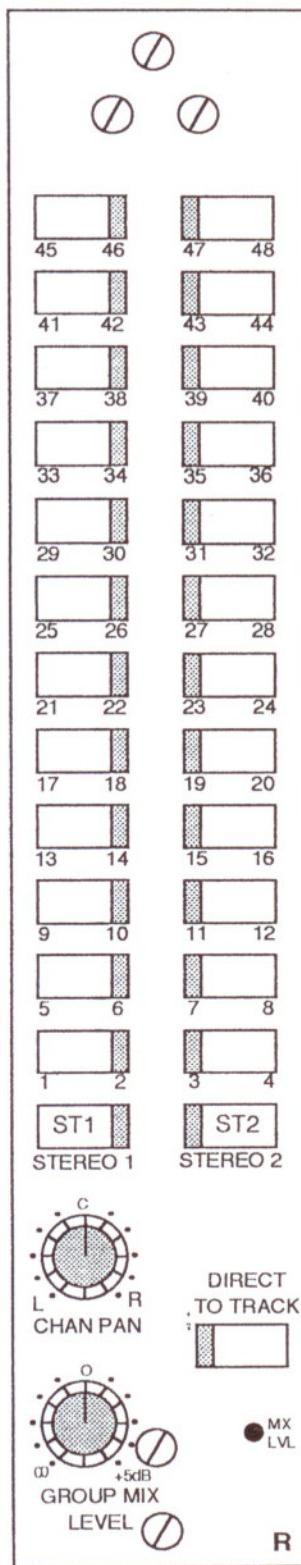
Two further switches allow the channel to be muted via the master M1 and M2 mute lines.

A red illuminated switch provides 'SOLO IN PLACE', AFL or PFL as dictated via master switches at the centre of the console or individually on each channel as described above. In the AFL/PFL mode the red lamp flashes.

A green/red LED has a dual role in providing visual indication of a signal levels. Greater than -40dBV the LED glows green and red for peak levels in a preset range of +12 to +18dBV.

A Penny and Giles fader is located in a separate fader bay. This may be replaced with one of the proprietary automation systems.

STANDARD LN3 IN LINE ROUTING MODULE



ROUTING MATRIX

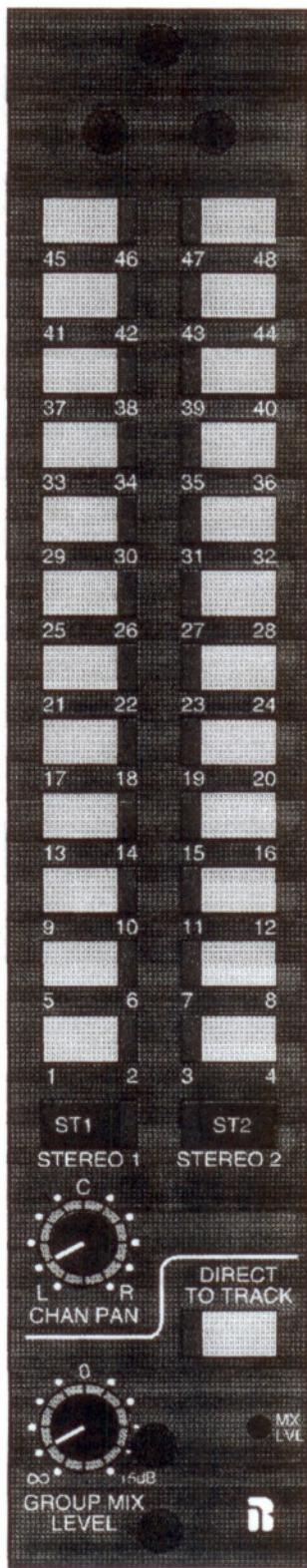
48 conventional bus/group outputs are provided. For smaller applications these may be presented as 32 groups or multiple sub groups.

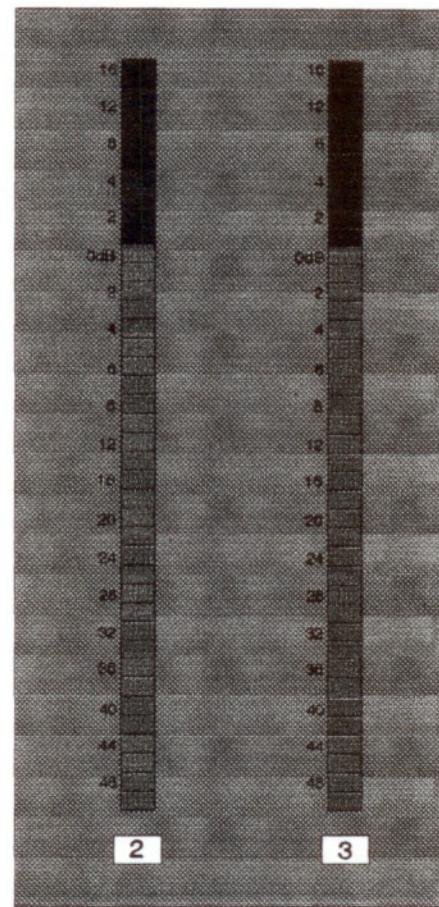
The channel PAN control is used to select the odd or even bus.

ST 1 and 2 selects the master stereo busses direct, these mixing busses are balanced.

DIRECT assigns the channel post fader output direct to the multitrack input. The routing matrix may be used to send the channel signal to OTHER group outputs.

GROUP MIX level adjusts the final overall bus/group output level to track between infinity and +5dB. A small 15 turn potentiometer is provided to set the group mix to 0dBm at the level control centre position. Access to this potentiometer is through the front panel.

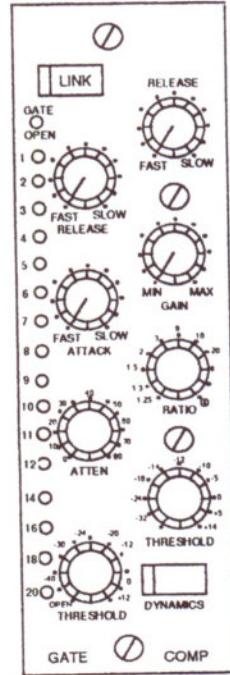


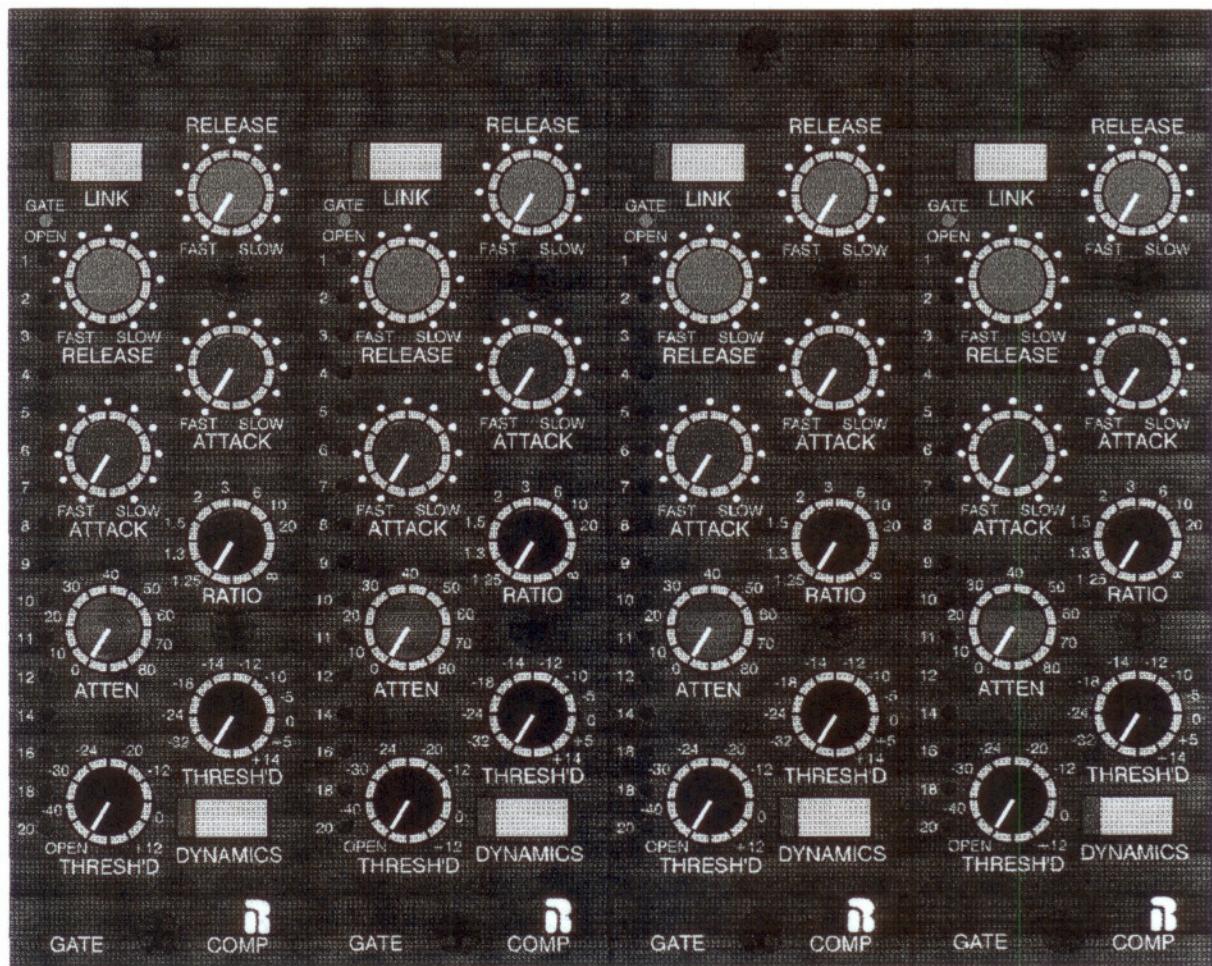


COMPRESSOR GATE

Comprehensive gate modules are available in either mono or stereo forms for inclusion into the console situation between the channel modules and the meter panels.

A group of 10 such modules maybe mounted in a 19" rack mount housing.





DUAL ECHO RETURN MODULE

ECHO RETURN

A three section stereo line return input channel having controls for input level, output balance, 3 section fixed frequency equalizer and ER to the 2 cue groups. Various switches provide for mono operation, EQ in/out, AFL, ER on/off and routing to one of the two stereo groups.

A three band equalizer offering bass, presence and treble at fixed frequencies of 80Hz, 2.8KHz and 8 KHz. The control range is +/-15dB in each case. An EQ in/out switch is provided.

A mono switch combines the left and right inputs.

Outputs from the return signal are derived post EQ and route via the Cue 1 and 2 pots to the cue outputs.

ST1/2 switch selects either of the stereo mixer output busses.

AFL enables a return signal to be monitored quickly and accurately. The signal source is post EQ.

A combination of the level and balance controls allow the echo return signal to be precisely positioned in the stereo mix.

An on/off switch is provided to disconnect the signal being routed to the stereo busses.

At the bottom of the modules are momentary action switches to enable such functions as a global solo reset of all soloed channels, PFL/AFL select, global VU reverse to change from meter LI to LO and vice versa plus 2 spare switches for studio use.

AUXILIARY / CUE MODULE

AUXILIARY MASTERS

Each of the 8 auxiliary outputs is provided with a master level control and an AFL pushbutton for monitoring the signal leaving the console. The LED associated with the master AFL/SAFE switch on the monitor module will flash whenever an auxiliary AFL facility is in use. The auxiliary output is routed to both left and right AFL busses.

CUE MASTERS

Each Cue section is provided with a master level control and an AFL pushbutton for monitoring the signal leaving the console. The LED associated with the master AFL/SAFE switch on the monitor module will flash whenever a cue AFL facility is in use. The stereo image of the cue output is reproduced by the stereo AFL system.

TALKBACK/OSCILLATOR MODULE

OSCILLATOR

A six frequency oscillator is provided having a trim control and on switch. Oscillator on is indicated by an LED.

The stereo and multitrack tape machines may be slated to the output busses to check frequency response and calibration levels. The oscillator on switch and the two slate switches are fitted with flashing LED's.

TALKBACK

Talkback to the STUDIO and to preselected outputs is made via two large pushbuttons. These may be used simultaneously. Linked to the COMMS switch are several minor routing pushbuttons, only those that have been depressed will be in circuit when the Comms switch is used. A spare output switch is provided for a custom facility.

A further switch with an associated flashing LED enables the talkback to be held permanently on which allows for a hands free operation of the talkback system.

The control room monitoring is dimmed whenever the talkback is in use.

The red 'RECORDING' light switch is conveniently placed immediately above the two talkback switches. The switch contacts are provided for customer use for use in conjunction with an external 'Recording in Progress' red light system. The current through this switch should be limited to a few milliamperes and a low voltage source, ie. control port of a transistorised relay. These may be supplied as an option with the console.

MASTER STATUS

The operational status of the console is set via these switches. The local switches repeated on the channels override the master setting and enable individual channels to be used for overdubbing, track jumping submixing etc.

Examples of status options are available drawn in schematic form and illustrate clearly the arrangement of the circuits for each status setting.

MONITOR MODULE

PFL/AFL CONTROLS

The PFL/AFL signal may be routed to a set of external loudspeakers, the signal is automatically switched to these whenever this facility is in use and the solo safe switch on.

Monitor to PFL/AFL allows a portion of the monitor mix to be added to the PFL/AFL mix to enable a voice or instrument to be within the mix but more prominent.

The monitor dim level is variable in the range -25 to -10 dBVU.

MONITOR SECTION

THREE SETS OF MONITOR LOUDSPEAKERS may be independently selected. The individual level controls allow loudspeaker levels to be balanced so that the engineer may switch safely between loudspeaker sets when making sound comparisons. Simultaneous outputs may be used. A further pre-monitor level send is provided for recording the monitor mix etc., the feed to this potentiometer is taken to a patch point in order to use the control as a basic studio playback control.

8 MONITOR SOURCES ARE PROVIDED, stereo 1, stereo 2 or one of six tape machine outputs. No damage is caused to the signal if by desire or accident two or more switches are selected simultaneously. The output of this source switchbank is metered by a pair monitor meters, these also automatically monitor the PFL/AFL levels.

Controls are provided to MUTE either the left or right output, DIM the monitor level and to listen in MONO mode.

An SOLO SAFE switch converts the channel and monitor solo systems to an AFL SAFE system. In this mode a solo button will automatically route a post fader signal to the monitoring system WITHOUT muting input or monitor sections of the console and thus destroying the recording. A further switch mounted on an Echo Return module will change the AFL listen mode to PFL.

STUDIO PLAYBACK

As an option a studio playback monitor section may be added to this module, Refer also to the pre monitor control above.

MASTER STEREO 2 SWITCHES

2 pushbuttons and a fader are provided.

Stereo 2 group output may be used in three modes -

- a) as a completely separate stereo output
- b) switched as a SUBGROUP master into stereo group 1 mix
- c) feeding stereo group 1 output simultaneously with stereo 1 so that CROSS FADES between the two stereo mixes may be accomplished.

MUTE 1 AND MUTE 2

These illuminated pushbuttons control the muting of a channel or groups of channels which are connected via the individual channel mute buttons to the muting busses.

SYMPHONY STATUS MODES

The circuit configuration of each channel module is described in the following schematic diagrams. These are the modes available without patching and may be set globally via the master status switches or locally at each module. Occasionally the use of a patch cord may be beneficial when setting up mixes or submixes across separate areas of the console.

NOTES

THE MIX STATUS IS THE MOST DOMINANT. ALL OTHER SELECTIONS ARE SECONDARY TO MIX.

FADER REVERSE, (FR) MAY BE USED AT ANY TIME. The signals on the short and long faders reverse their position without altering any other facility. The channel and monitor switch functions remain in place.

Monitor mute at the channels is automatically switched on if no status selection has been made.

REC mode sets the channel to monitor Line input to the tape machine with the microphone signal passes via the equalizer and upper pan pot to the routing matrix.

TAPE mode shifts the monitoring to the tape machine output whilst recording via the equalizer, upper pan pot and routing matrix.

MIX mode switches the multitrack tape output via the channel line input to the equalizer, large fader, lower pan pot into either stereo bus. The SHORT FADER is connected post the large fader to produce extra effects sends via the routing matrix.

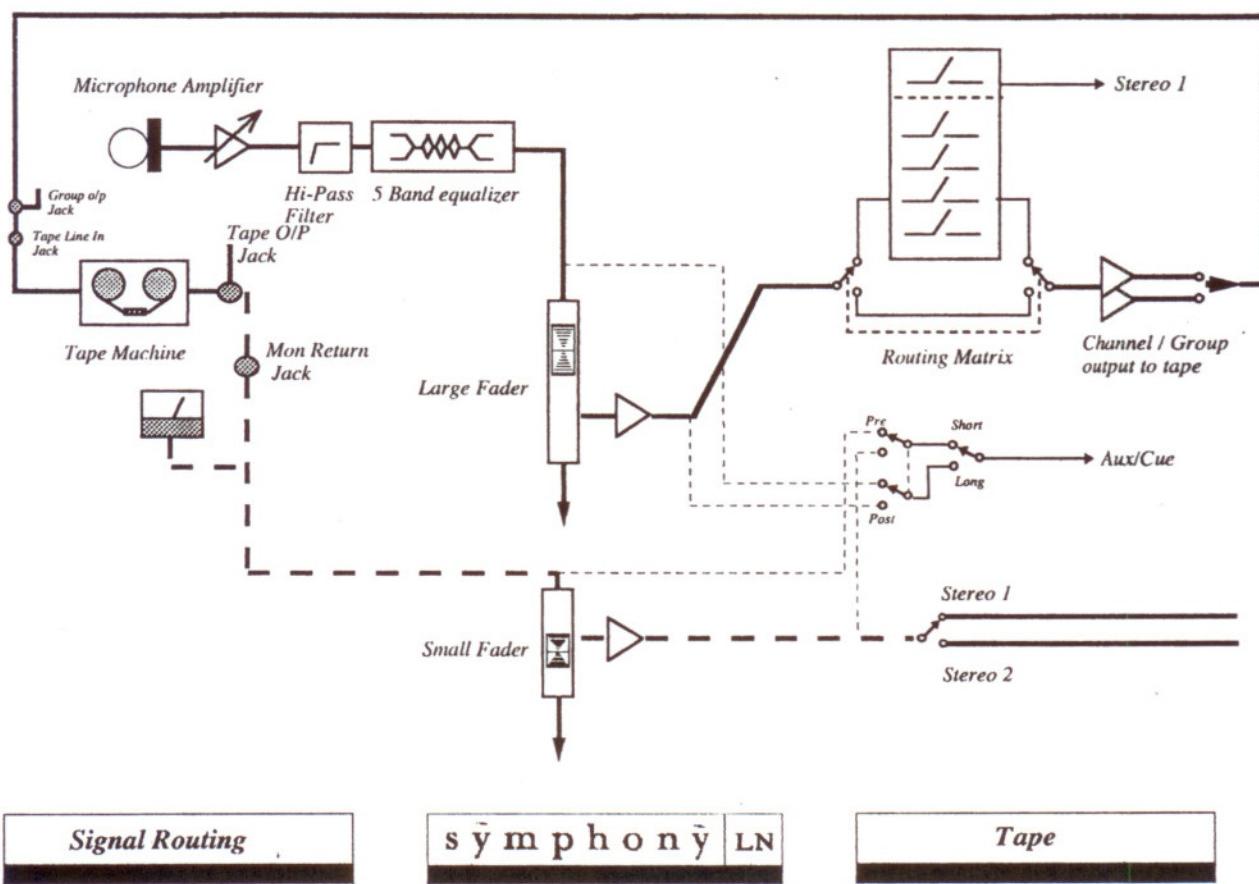
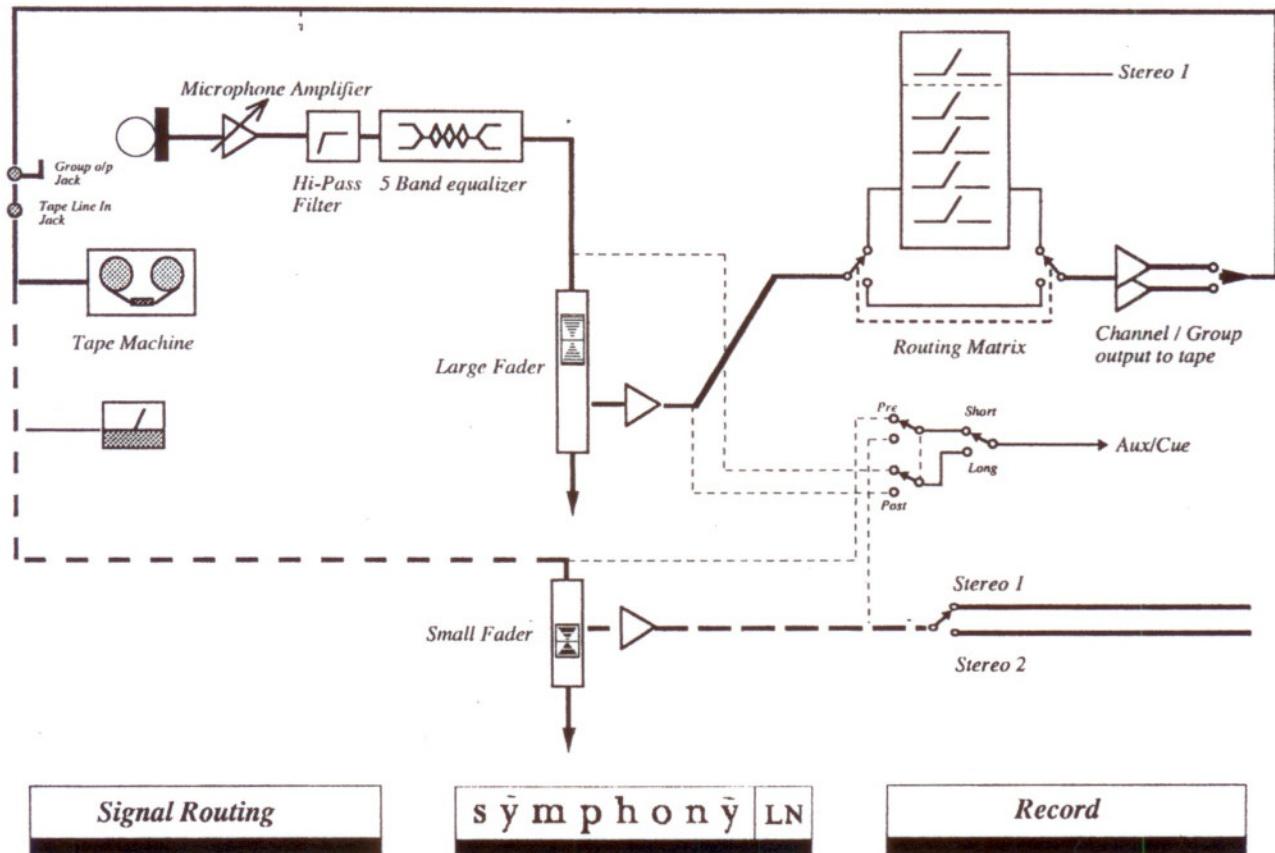
MIX + TAPE switches the short fader to the monitor return jacks of the patch bay in order to double the mixing inputs. (Note that the monitor return points are half normalised to the tape machine outputs).

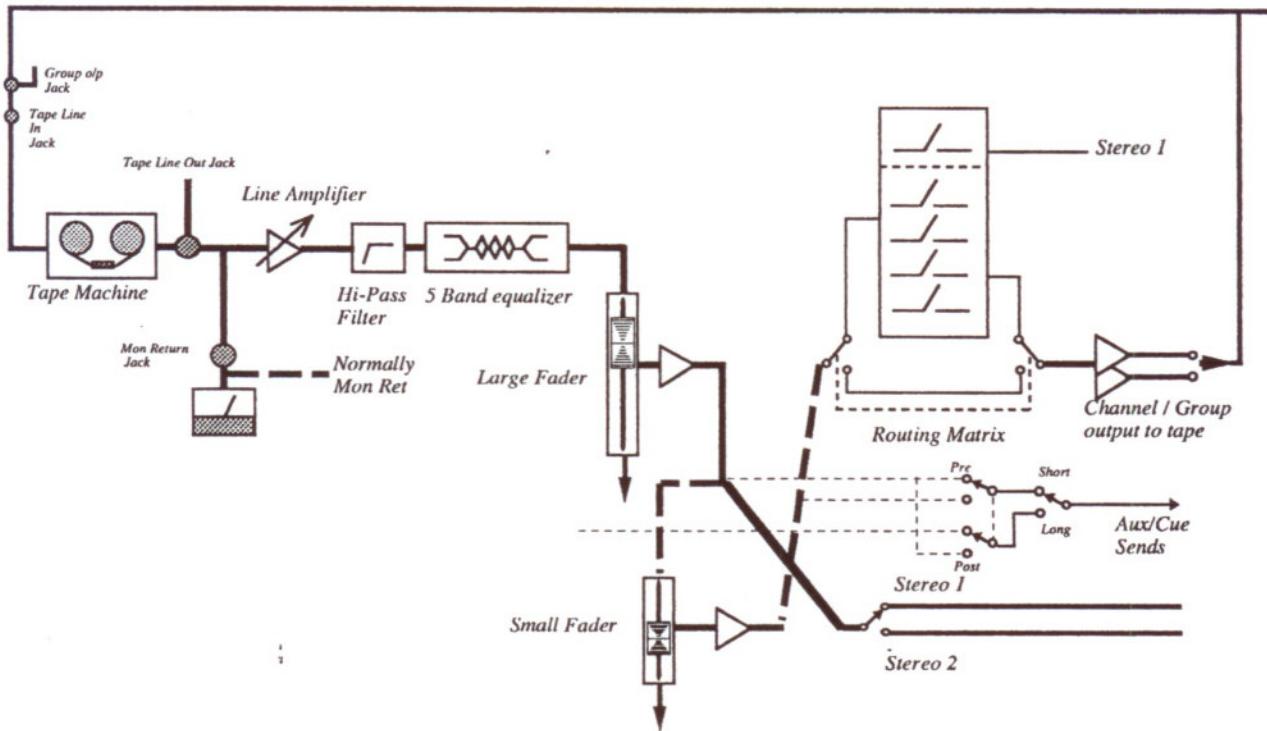
Mix + REC sets the channel into a record mode allowing the channel line input signal to be recorded via the equalizer and the routing matrix. The monitor is set to TAPE INPUT.

MIX + TAPE + REC sets the channel into a record mode allowing the channel line input signal to be recorded via the equalizer and the routing matrix. The monitor is set to TAPE OUTPUT.

BROADCAST MODE.

REC + TAPE status. The microphone signal passes via the equalizer to the large fader, lower pan pot to the stereo busses as selected. A pre fader signal is paralleled via the short fader and upper routing matrix multitrack machine .

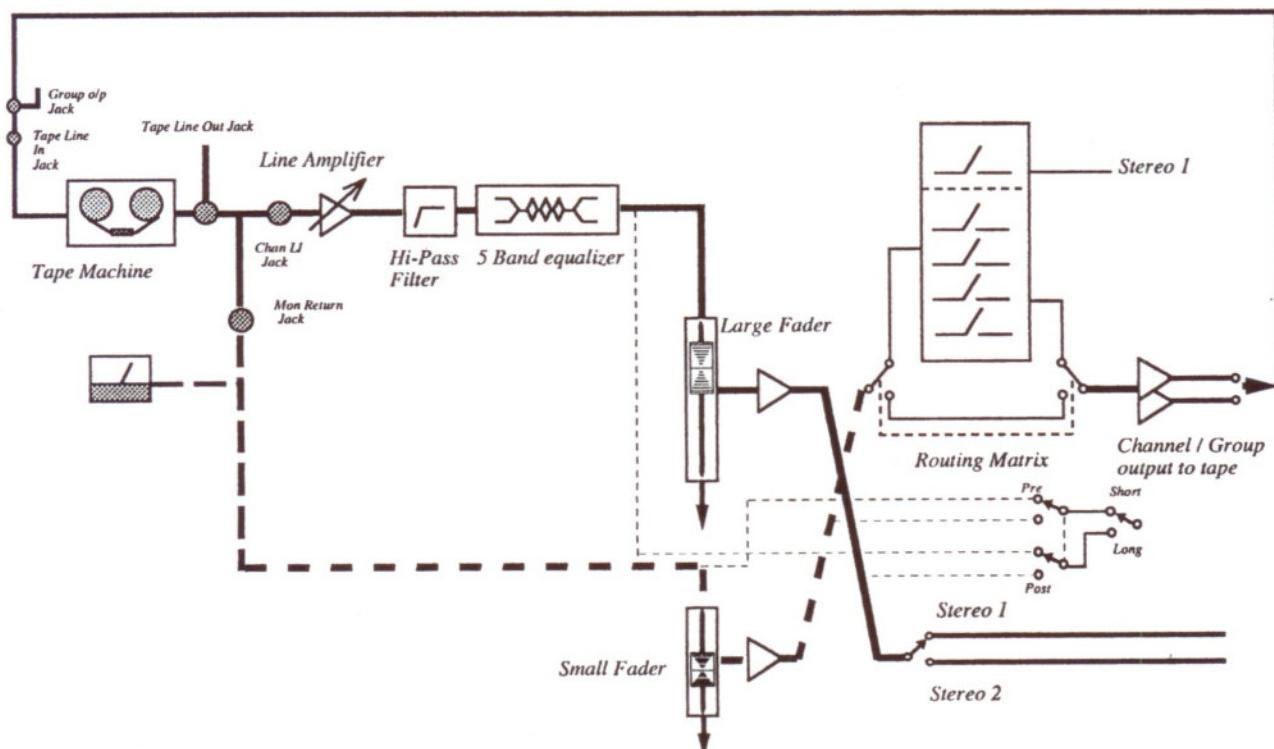




Signal Routing

s y m p h o n y LN

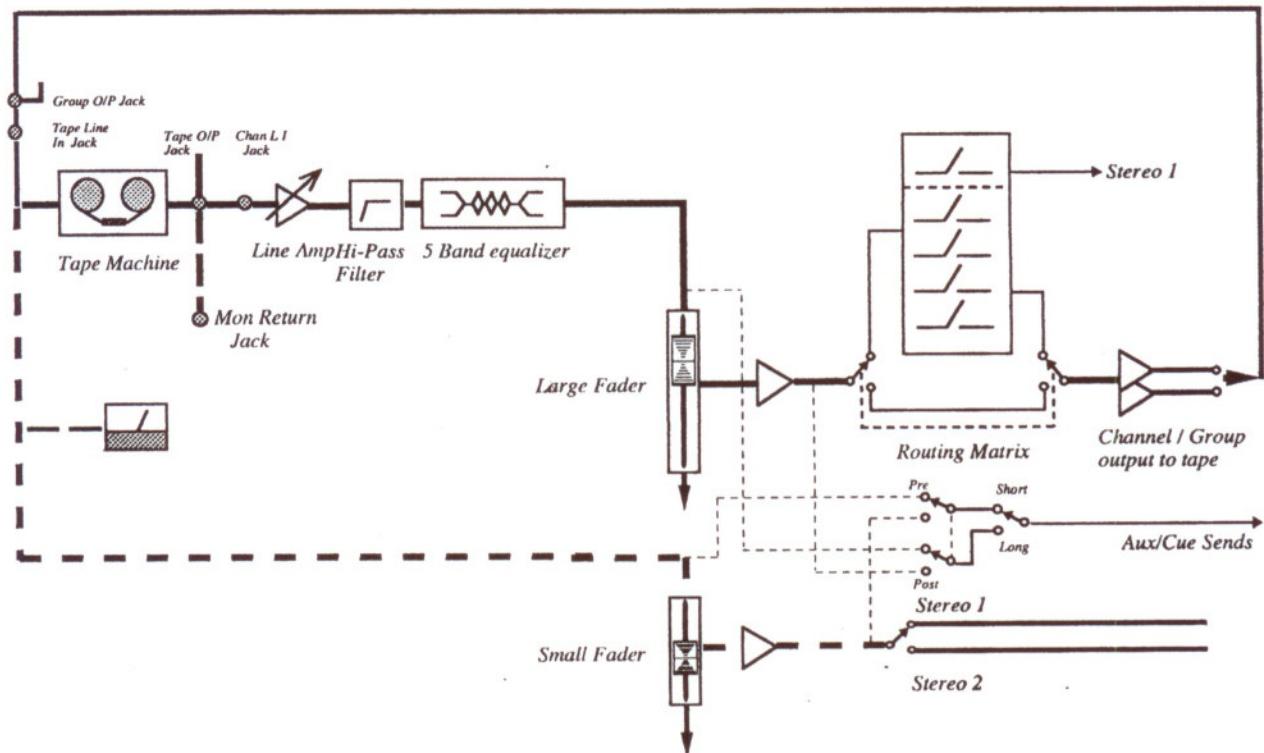
Mix



Signal Routing

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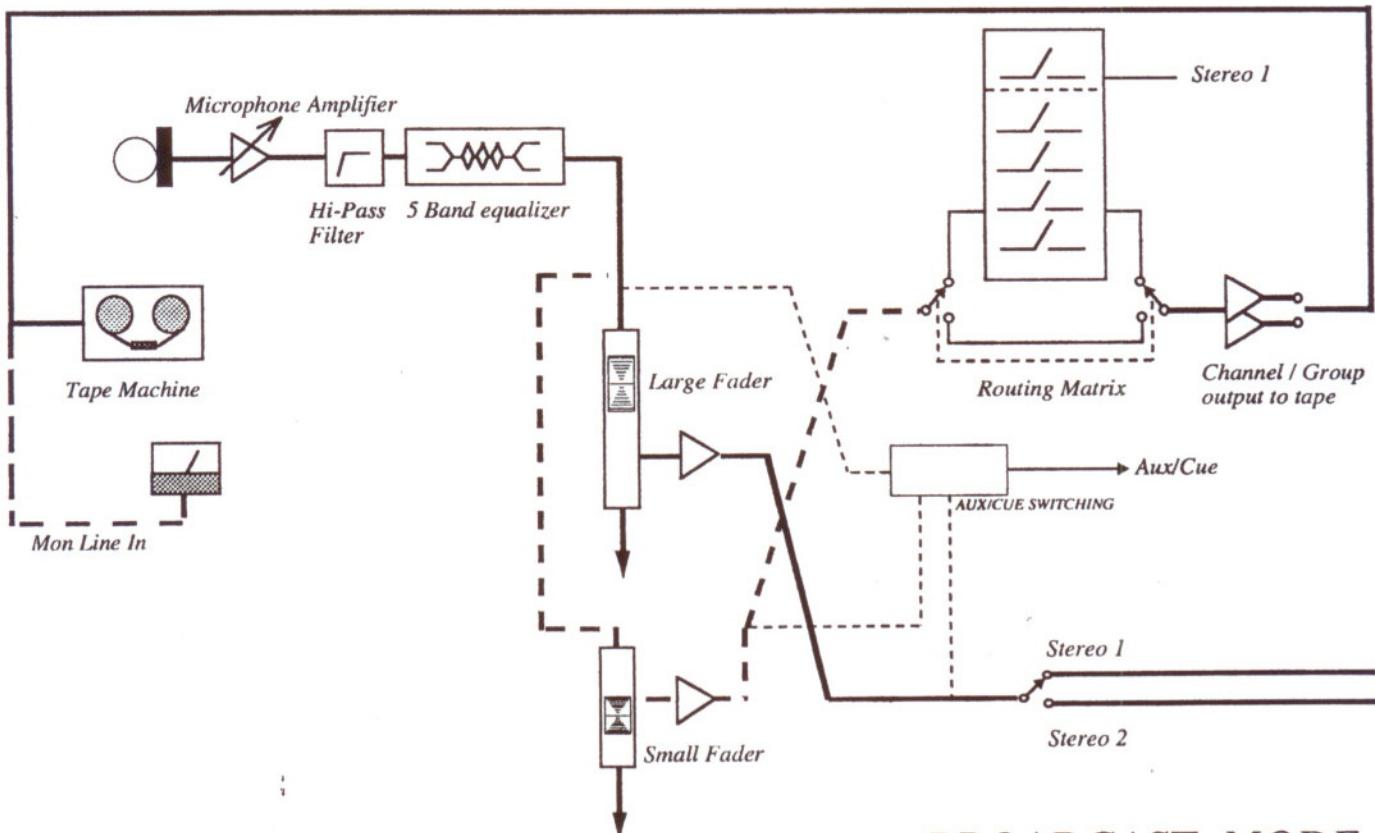
Mix + Tape



Signal Routing

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Mix + Record

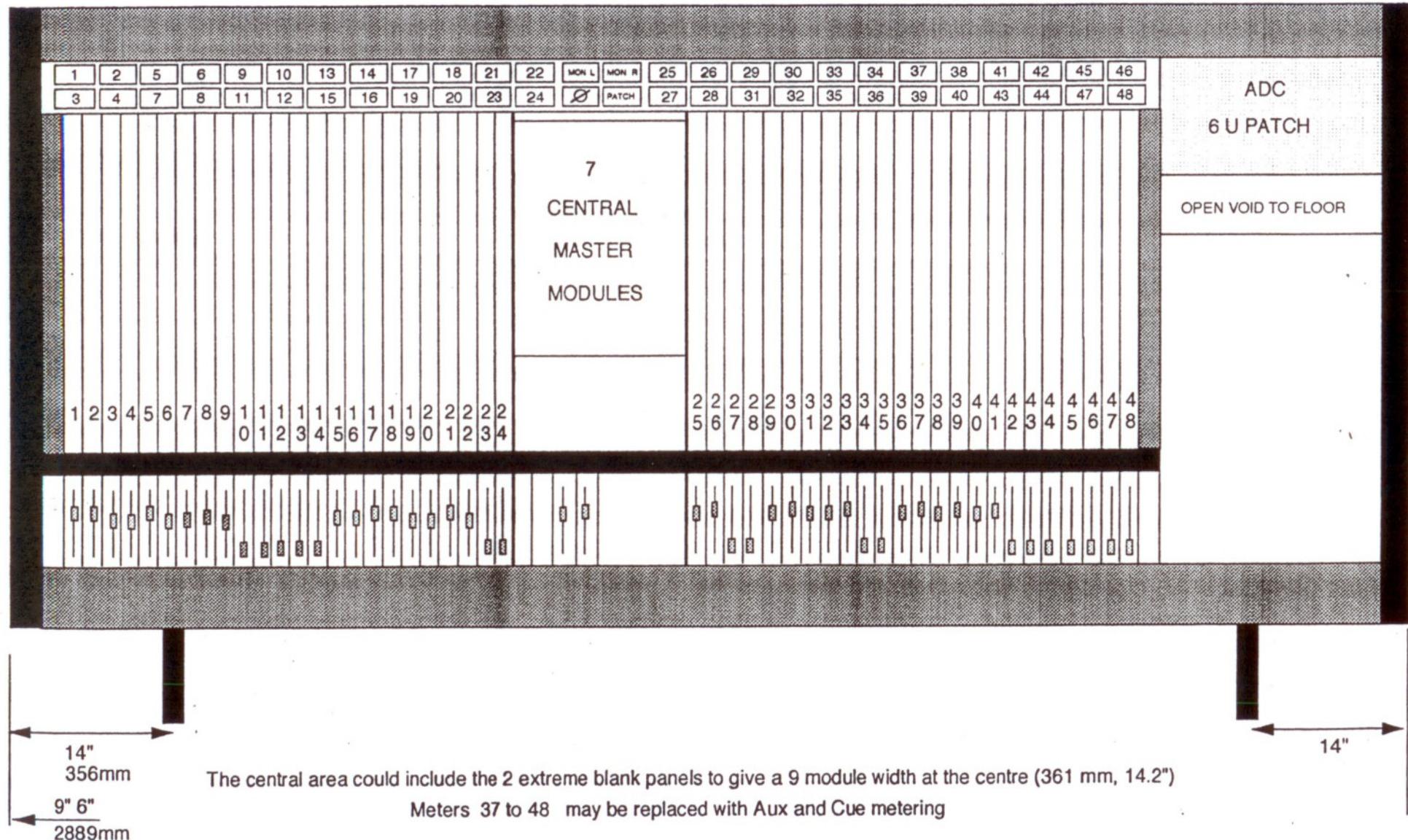


Signal Routing

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REC + TAPE

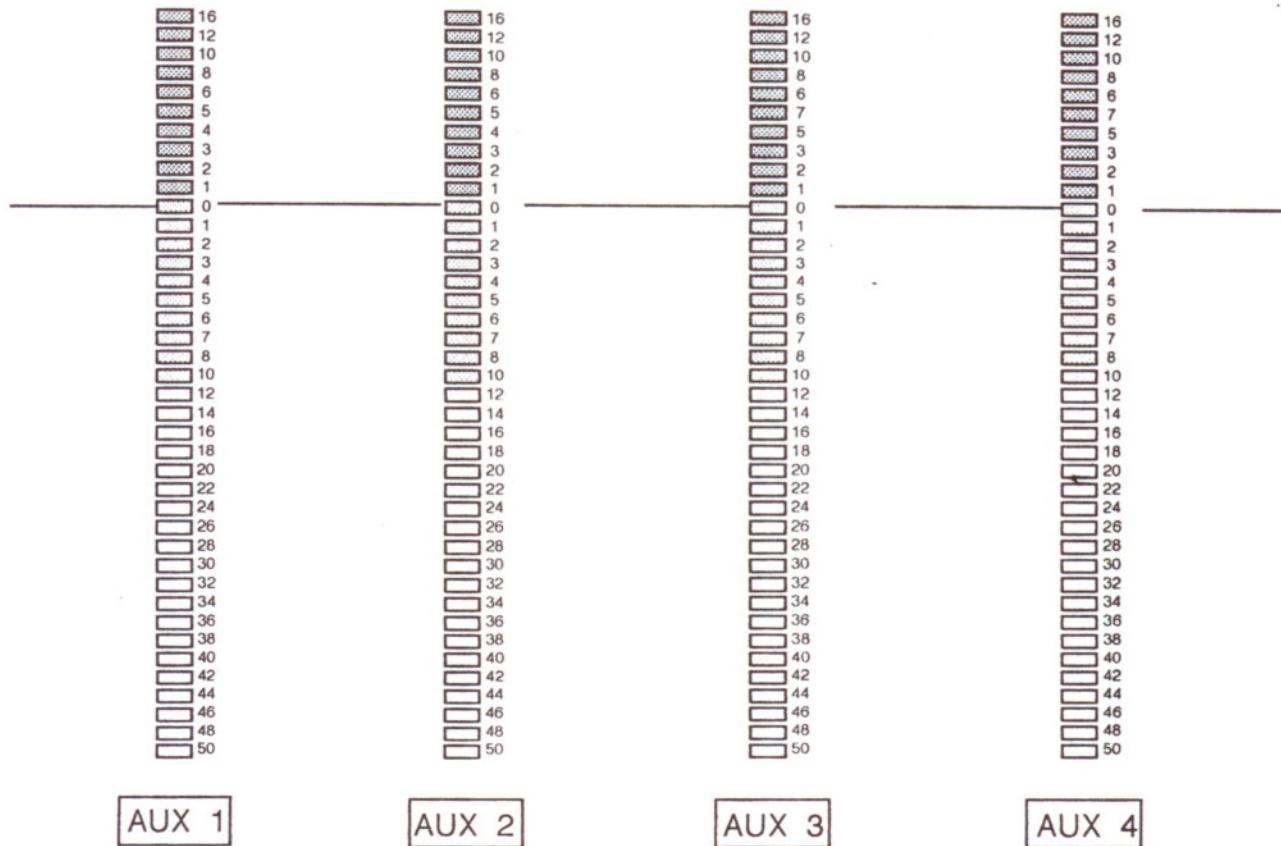
USING SHORT MASTER MODULES AND HAVING SMALL KEYBOARD SPACE



The central area could include the 2 extreme blank panels to give a 9 module width at the centre (361 mm, 14.2")

Meters 37 to 48 may be replaced with Aux and Cue metering

SAMPLE OF 40 WAY LED BARGRAPH



Each peak meter bargraph consists of 40 led's which illuminate as a continuous bar. The upper 10 led's are generally red, a choice between yellow and green is offered for the remainder to distinguish between the various outputs from the console. Pre-set potentiometers are fitted for alignment and setting the desired signal level at the zero point.

A jet black plastic overlay is fitted to the front of the bargraph having light grey characters and box outlines. The windows for the led's are clear.

48 CHANNEL PATCH LAYOUT USING 7X 19" x 1U MODULES , 48 JACKS PER ROW.

JACKS 1 - 24

O	CHANNEL INSERT SEND																								O
A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	A
O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	O
B	CHANNEL INSERT RETURN																								B
O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	O
C	CHANNEL / GROUP OUTPUTS																								C
O	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	O
D	TAPE MACHINE INPUTS																								D
O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	O
E	TAPE MACHINE OUTPUTS																								E
O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	O
F	CHANNEL LINE INPUTS																								F
O	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	O
G	CHANNEL MONITOR RETURN INPUTS																								G
O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	O
gg	EXTERNAL EQUIPMENT																								gg
O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	O
H	CUE OUTPUTS				AUXILIARY OUTPUTS								ECHO RETURN LINES												H
O	1L	1R	2L	2R	1	2	3	4	5	6	7	8	1L	1R	2L	2R	3L	3R	4L	4R	5L	5R	6L	6R	O
J	CUE AMP I/P'S				AUXILIARY DEVICE INPUTS								ECHO RETURN MODULE INPUTS												J
O	0	0	0	0	0	0	0	0	0	0	0	0	1L	1R	2L	2R	3L	3R	4L	4R	5L	5R	6L	6R	O
K	EXTERNAL EQUIPMENT INPUTS																								K
O	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	O
L	EXTERNAL EQUIPMENT OUTPUTS																								L
O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	O
M	EXTERNAL EQUIPMENT INPUTS																								M
O	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	O
N	EXTERNAL EQUIPMENT OUTPUTS																								N
O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	O

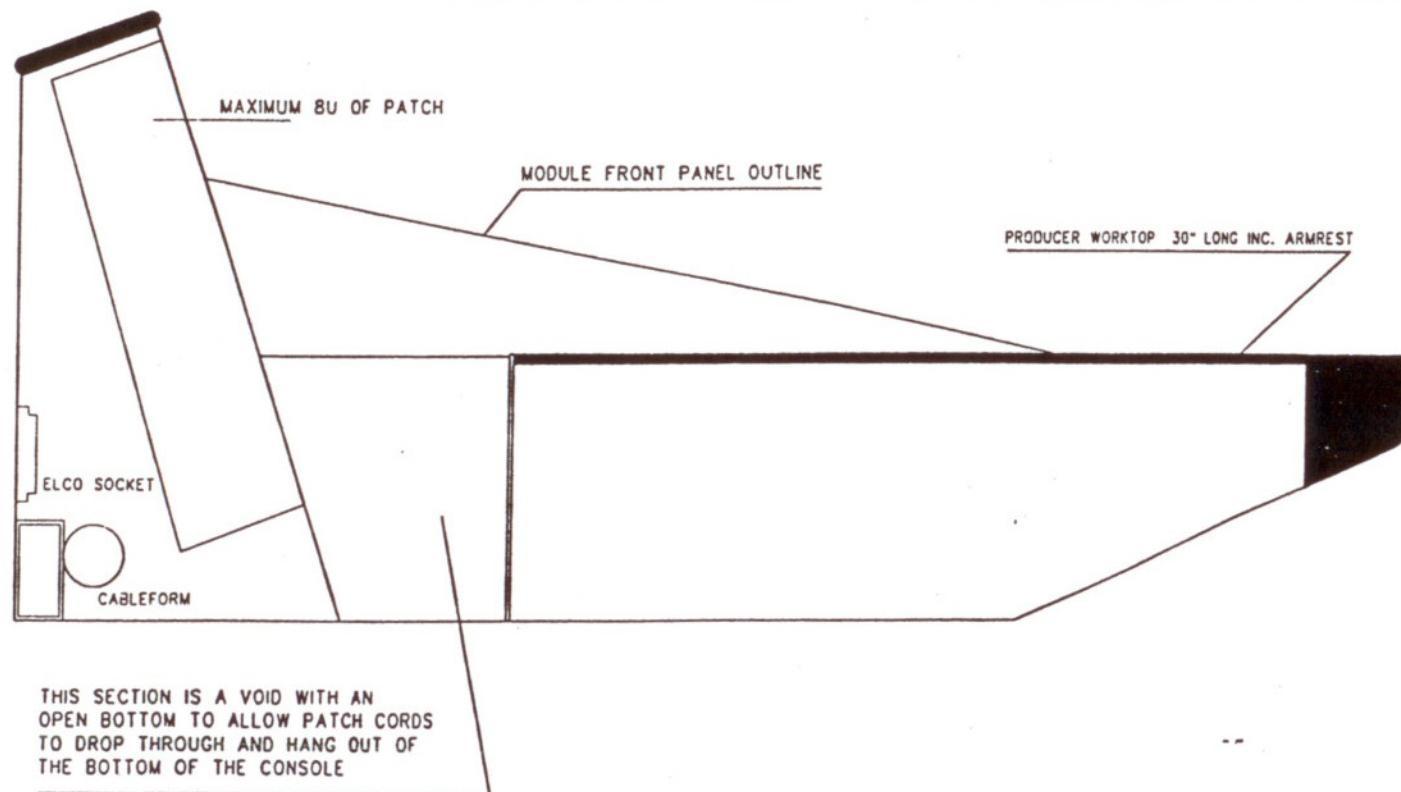
TOTAL OF 168 spare external equipment jacks

48 CHANNEL PATCH LAYOUT USING 7X 19" x 1U MODULES , 48 JACKS PER ROW.

JACKS 25 - 48

		CHANNEL INSERT SEND																											
O	A	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	O	A		
CHANNEL INSERT RETURN																													
O	B	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	B	O		
CHANNEL/GROUP OUTPUTS																													
O	C	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	C	O		
TAPE MACHINE INPUTS														TAPE MACHINE INPUTS														D	O
O	D	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	D	O		
TAPE MACHINE OUTPUTS														TAPE MACHINE OUTPUTS														E	O
O	E	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	E	O		
CHANNEL LINE INPUTS																											F	O	
O	F	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	F	O		
CHANNEL MONITOR RETURN INPUTS																											G	O	
O	G	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	G	O		
MONITOR OUTPUT										MONITOR AMP I/P				STEREO INS SEND				STEREO INS RETURN				PHASE IN OUT		PHASE IN OUT		gg	gg		
O	gg	1L	1R	2L	2R	3L	3R	1L	1R	2L	2R	3L	3R	1L	1R	2L	2R	1L	1R	2L	2R	1L	1R	2L	2R	gg	O		
ECHO RETURN LINES														STEREO GROUP OUTPUTS														H	O
O	H	7L	7R	8L	8R	9L	9R	10L	10R	11L	11R	12L	12R	1L	1R	1L	1R	2L	2R	-----	-----	OSC O/P	-----	PARALLEL	-----	-----	H	O	
ECHO MODULE INPUTS														STEREO TAPE MACHINE INPUTS														J	O
O	J	7L	7R	8L	8R	9L	9R	10L	10R	11L	11R	12L	12R	1L	1R	2L	2R	3L	3R	4L	4R	5L	5R	6L	6R	J	O		
EXTERNAL EQUIPMENT INPUTS														STEREO TAPE MACHINE OUTPUTS														K	O
O	K	25	26	27	28	29	30	31	32	33	34	35	36	1L	1R	2L	2R	3L	3R	4L	4R	5L	5R	6L	6R	K	O		
EXTERNAL EQUIPMENT OUTPUTS														CONSOLE STEREO MONITOR RETURNS														L	O
O	L	25	26	27	28	29	30	31	32	33	34	35	36	1L	1R	2L	2R	3L	3R	4L	4R	5L	5R	6L	6R	L	O		
EXTERNAL EQUIPMENT INPUTS																											M	O	
O	M	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	M	O		
EXTERNAL EQUIPMENT OUTPUTS																											N	O	
O	N	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	N	O		

CROSS SECTION VIEW OF INTEGRAL PRODUCER/PATCH AREA



SYMPHONY CONSOLE